CHAPTER 5: SECOND PAPER FEED SECTION

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1. Theory of Operation

1. Second Paper Feed Drive Mechanism

1. Drive

- Main cam makes clockwise rotation (looking from the rear) with the turn of the main motor.
- The Main cam rotation moves Sector gear back and forth via Cam follower arm.
- The Sector gear rotates Timing roller via Timing cam.
- The Timing roller rotates Guide roller.

2. Timing Cam

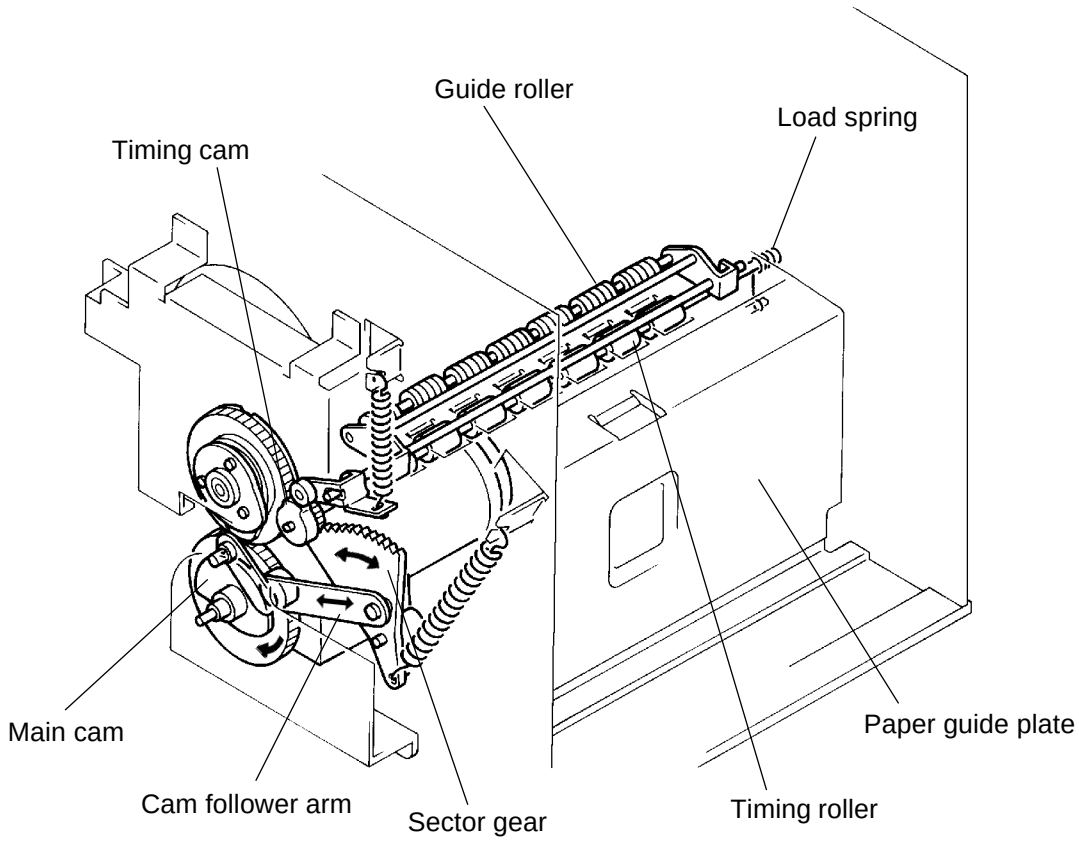
- The Timing cam contains one-way clutch.
- The rotation of the Timing cam is transferred to the Timing roller only when the Timing cam makes counter-clockwise rotation.

3. Timing Roller

- The Timing roller contains Load spring which applies brake on the roller at all times. It stops the rotation of the roller as soon as the Timing cam stops its counter-clockwise rotation.
- The Timing roller stays still while the Timing cam makes clockwise rotation.

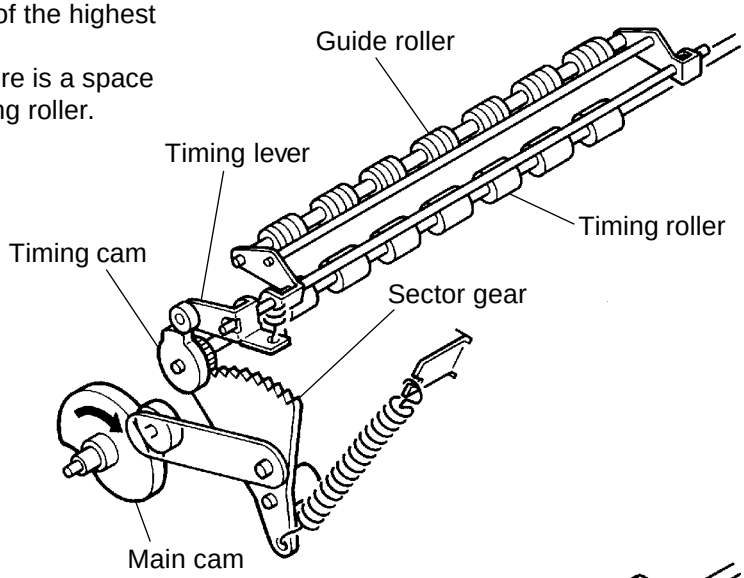
4. Guide Roller

- The Guide roller is a free rotating roller.
- It rotates when coming in contact with a rotating Timing roller.
- The vertical movement of the Guide roller is controlled by the rotation of the Timing roller.
- The Guide roller comes down and contacts against the Timing roller while the First paper feed section is still in motion.
- The Guide roller lifts and releases from the Timing roller the same time the Timing roller stops its rotation.



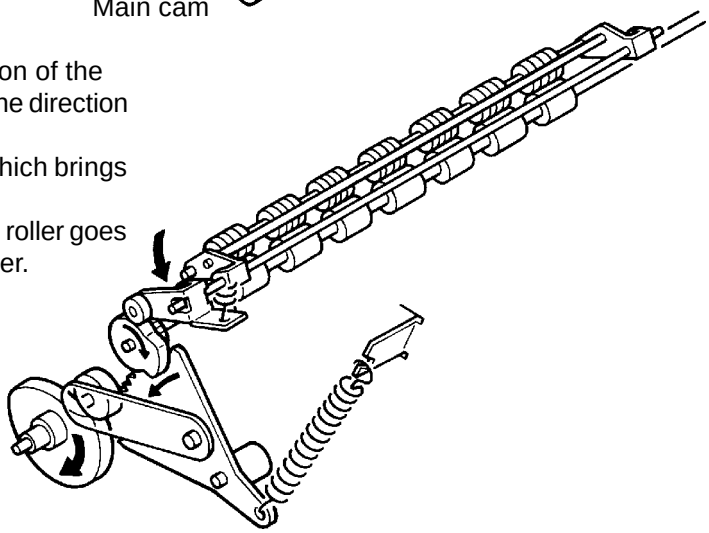
Drum Position-B

• At Position-B, the Timing lever on top of the highest position of the Timing cam.
Thus the Guide roller is raised and there is a space between the Guide roller and the Timing roller.



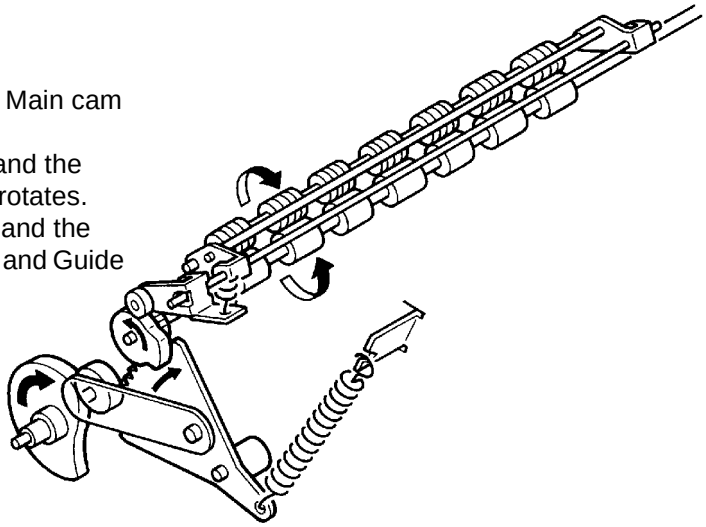
First Paper Feed

• With the start of 1st paper feed, the rotation of the Main cam brings the Sector gear down, in the direction shown by arrow mark.
The Sector gear rotates the Timing cam which brings the Timing lever down.
As the Timing lever comes down, the Guide roller goes down, making contact with the Timing roller.



Second Paper Feed

• After the 1st paper feed is completed, the Main cam rotation brings the Sector gear up.
The Sector gear rotates the Timing cam, and the Timing roller attached on the Timing cam rotates.
The Timing roller rotates the Guide roller, and the paper pinched in between the Timing roller and Guide roller is fed towards the Drum.



2. Vertical Printing Position

1. Print Positioning Motor

- The Print positioning motor activates when the Print position adjustment keys, ◁ or ▷, is pressed.
- When one of above keys is pressed, the Print positioning motor activates and rotates the Vertical print position cam.

2. Print positioning Cam

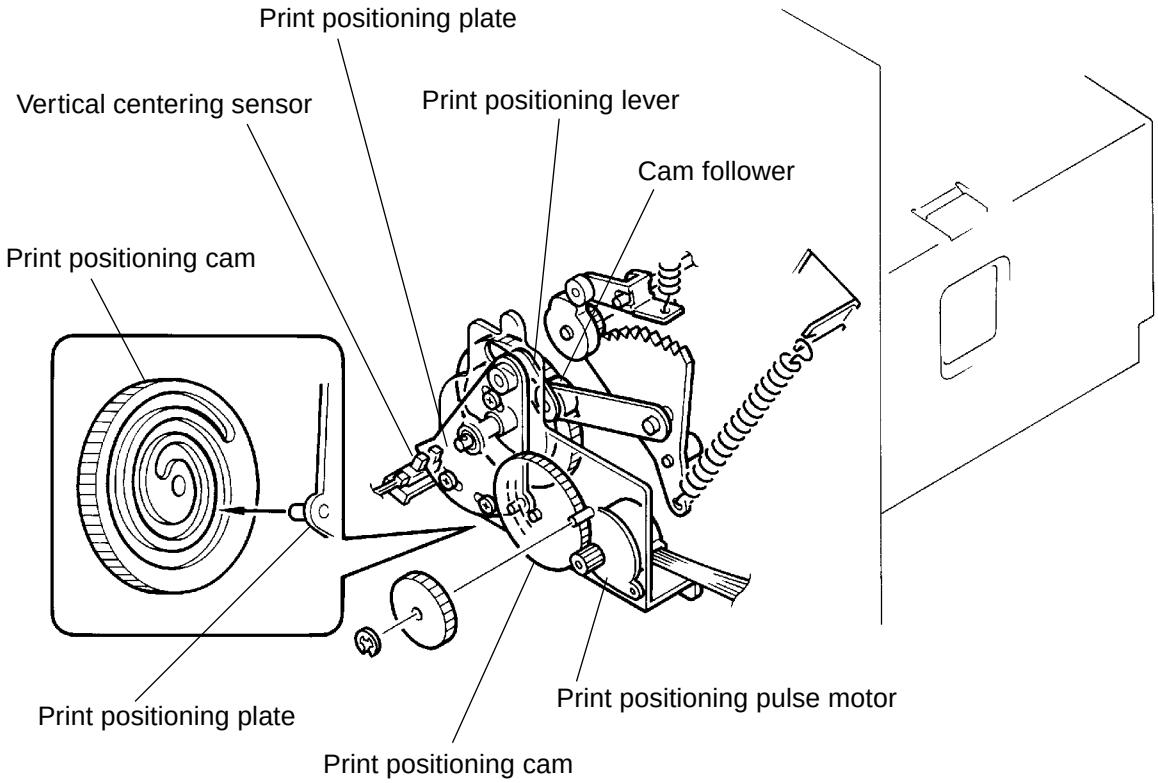
- The Print positioning cam on the inner surface has a groove cut in a whirl shape.
- As the cam is rotated by the Print positioning motor, it pulls or pushes the Print positioning plate with its whirl groove.
  The pivot of the plate is on the Main cam shaft and a pin on the plate is engaged in the whirl groove of the cam.

3. Print Positioning Lever

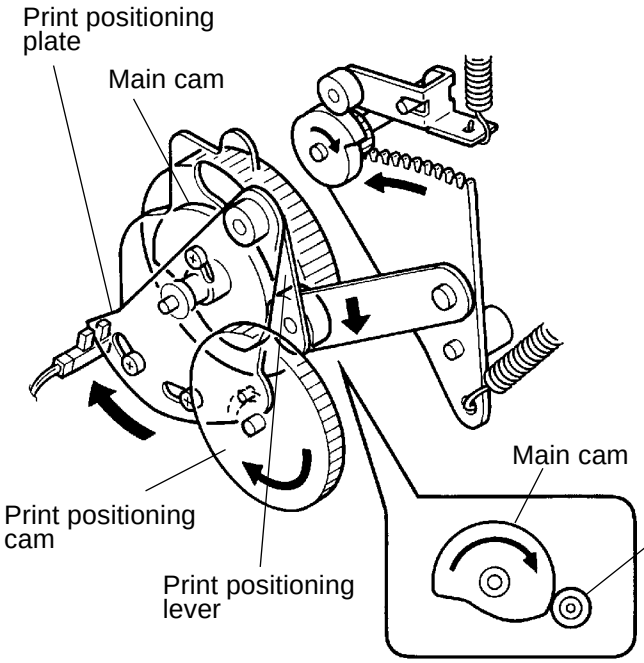
- Print positioning lever attached at the top of the Print positioning plate is pulled up or pushed down as the plate moves the either way.
- When the lever is pushed down, the Cam follower moves down with it and it causes the Cam follower to contact the Main cam at a lower position.
- When the lever is pulled up, the Cam follower comes up with it and it causes the Can follower to contact the Main cam at a higher position.

4. Print Position

- When the ▷ key is pressed, the Print positioning lever is pushed down and the print position moves up.
- When the ◁ key is pressed, the Pint position lever is pressed up and the print position moves down.

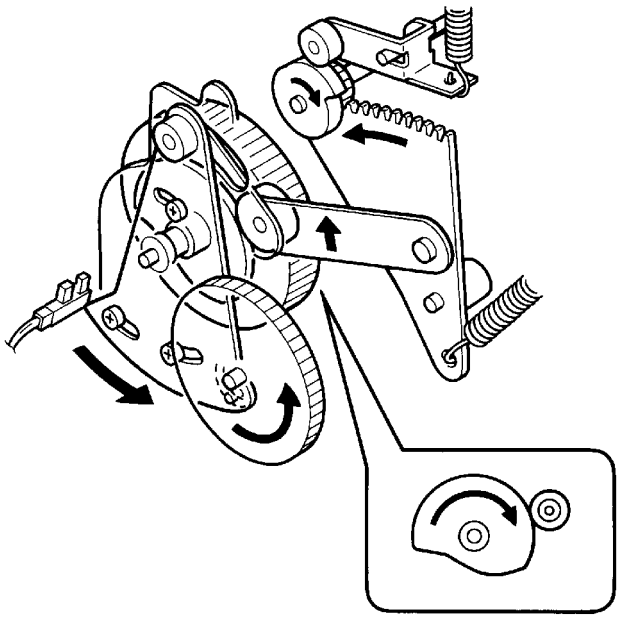


▷ Key moves the print position up.



As the ▷ key is pressed, the Print positioning cam and Print positioning plate moves in the direction shown by the arrow marks.
When the Print positioning plate moves, the Print positioning lever moves with it.
As the Print positioning lever moves, the timing of the contact of the Cam follower against the Main cam is delayed.
When the timing is delayed, the second paper feed delays.
Therefore the print position moves up.

◁ Key moves the print position down.



As the ◁ key is pressed, the Print positioning cam and Print positioning plate moves in the direction shown by the arrow marks.
When the Print positioning plate moves, the Print positioning lever moves with it.
As the Print positioning lever moves, the timing of the contact of the Cam follower against the Main cam becomes earlier.
When the timing becomes early, the second paper feed starts early.
Therefore the print position moves down.